

## A Preliminary Study of the Idiocerinae of Chile (Homoptera: Cicadellidae)<sup>1, 2</sup>

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The Chilean fauna of leafhoppers is unique and seemingly, in most groups, quite separate from the leafhoppers in the remaining countries of South America. The Idiocerinae are of this unique type and are not now known from anywhere else. Their closest relatives are in the genus *Idioscopus* Baker which occurs mostly in the Oriental and African areas of the world. They cannot be properly placed in this genus, however, so are here being described in a new genus.

All Chilean specimens in this subfamily examined so far belong to this new genus. These were from the central area of Chile, from the province of Coquimbo to the province of Concepción. The entire country has not been surveyed, so this initial picture will undoubtedly change.

### *Chileanoscopus* new genus

Type-species: *Chileanoscopus hamulus* n. sp.

Crown short, broad, rounded to front. Ocelli on face, near or above ends of frontal sutures, nearly same distance between them as to each eye. Antennae long, male without disc. Lora rounded, somewhat overlapping clypeus on each side. Forewing with normal venation, appendix large. Hind femur with 2 apical setae and 1 subapical seta. Male plates thickened, paddle-shaped, fringed with long fine setae. Male aedeagus simple, tubular, without major processes, apodeme large.

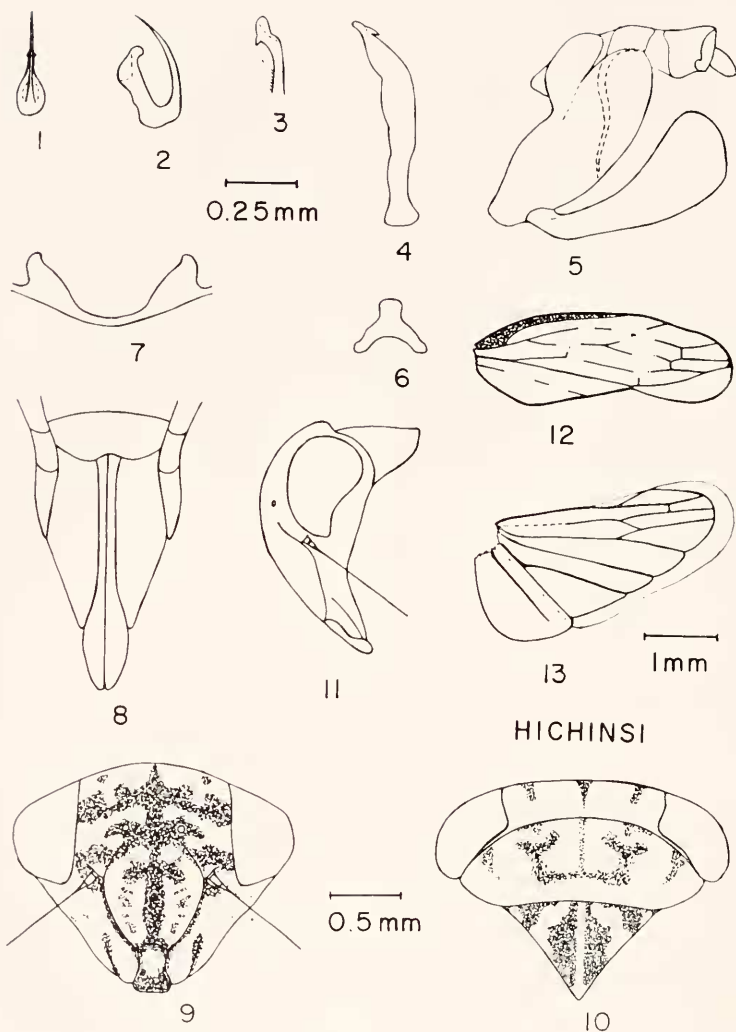
This genus resembles *Idioscopus*, as redefined by Maldonado-Capriles (1964 and 1965), in wing venation and femoral setae. It differs in that the male plates are thickened and quite broad apically instead of long and narrow, and the aedeagus is simple instead of with 2-4 processes. This is the only known idiocerine genus in the new world with the subapical seta on the hind femur.

Because the females of the species are so closely related, no key is given for their separation.

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## HICHINSI

FIGS. 1-10. *Chilcanoscopus hichinsi* (Heller). FIG. 1, ventral view of aedeagus; FIG. 2, lateral view of aedeagus; FIG. 3, ventral tip of style; FIG. 4, lateroventral view of style; FIG. 5, lateral view of genital capsule; FIG. 6, dorsal view of connective; FIG. 7, dorsal view of male 2nd sternal apodemes, all male drawings to same scale; FIG. 8, ventral view of female genitalia; FIG. 9, face view of female head; FIG. 10, dorsal view of female head, pronotum and scutellum; FIG. 11, lateral view of female head and pronotum; all female drawings to same scale; FIG. 12, right forewing; FIG. 13, right hind wing, drawn to same scale.

## KEY TO THE MALES

1. Tip of style hooked (Fig. 25); aedeagal shaft curved and extending slightly beyond aedeagal apodeme (Fig. 24).....2
- 1'. Tip of style straight (Fig. 3); aedeagal shaft not extending beyond aedeagal apodeme (Fig. 2).....3
- 2(1). Tip of aedeagal shaft flattened dorsoventrally into a diamond shaped plate (Fig. 32).....**repandus** n. sp.
- 2'. Tip of aedeagal shaft only slightly expanded (Fig. 23).....**hamulus** n. sp.
- 3(1'). Aedeagal shaft evenly curved (Fig. 15).....**ancorus** n. sp.
- 3'. Aedeagal shaft nearly straight (Fig. 2).....**hichinsi** Heller

**Chileanoscopus hichinsi** (Heller) NEW COMBINATION

(FIGS. 1-13)

*Idiocerus hichinsi* Heller, 1969, p. 155

Length of males 4.9-5.3 mm and of females 5-5.3 mm.

*Structure*.—Head wider than pronotum, margin slightly but evenly rounded. Head, pronotum, and scutellum smooth. Forewings smooth with small pits along main veins; appendix large. Male second sternal apodeme (Fig. 7) stout, slanting with small apex.

*Coloration*.—Highly patterned over-all with spots and blotches of reddish brown to black on a tan to yellow background, males darker than females. Head, pronotum and scutellum (Figs. 9 and 10) yellow, patterned with reddish brown or black. Forewings (Fig. 12) generally smoky tan or yellow with veins darker, interrupted with light yellow areas.

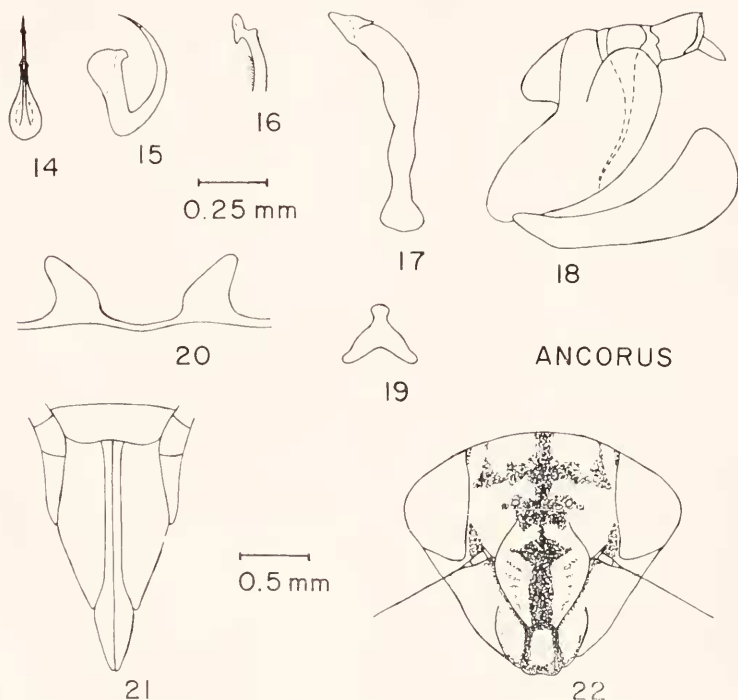
*Male genitalia*.—Plate thick at base, then gradually laterally flattened toward a paddlelike apex. Pygofer narrow, with apex rounded and produced on each side. Tenth segment extending basally on each side as a fine process, within pygofer, to a point near base of styles. Styles with a patch of setae on lateral margin of narrowed middle, apical end scooped out medially with apex thin, straight, margin rounded, subapical hooklike process on lateral side. Connective thick and V-shaped. Aedeagus simple with shaft nearly straight except near apex where it bends slightly dorsad; apodeme well developed, narrowing in ventral view to apex, expanded near apex in lateral view, and apex in line with base and apex of shaft.

*Female genitalia*.—Ovipositor extending beyond pygofer slightly more than its own width. Pygofer narrow, long, with rounded margins. Posterior margin of 7th sternum broadly rounded with a large median emargination.

*Type*.—Holotype male from Tabon Tincja, Talca, Chile, October 10, 1964, O. Hichins, in the collection of the Instituto de Biología, Universidad de Chile, Valparaíso, Chile.

*Notes*.—This appears to be the most common species found in Chile. There seems to be much minor variation in morphological structures and this could be a complex of species. At the present time, however, the specimens of this species can be separated from the other species by the nearly straight aedeagal shaft.

*Specimens examined*.—2 males, 2 females, Los Pollines, Prov. de Nuble, Chile, March 4, 1952, L. E. Pena; 1 male, 4 females, El Clarillo, Chile, February 19, 1953, 800–1,500 m, L. E. Pena; 1 male, 1 female, Santiago, Chile, January 19, 1954, 600–1,100 m, L. E. Pena; 1 male, 4 females, Curanipe, Chile, December 4, 1953, L. E. Pena; 1 male, 1 female, Cobquecura, Chile, December 14, 1953, L. E. Pena; 2 males, 2 females, El Canelo, Chile, December, 1952, L. E. Pena; 4 males, 11 females, Trequalemo, Chile, December 6, 1953, L. E. Pena; 2 males, 24 females, Penalolen, Santiago, Chile, October 10, 1953, L. E. Pena, all in the North Carolina State University Collection; 14 males, 19 females, Concepción, Chile, December 16–21, 1967, D. M. DeLong Collection; 2 males, 6 females, Renca, Santiago, Chile, November 1950, N. N. Coll., in the Ohio State University Collection.



FIGS. 14-22. *Chilcanoscopus ancorus* n. sp. FIG. 14, ventral view of aedeagus; FIG. 15, lateral view of aedeagus; FIG. 16, ventral tip of style; FIG. 17, lateroventral view of style; FIG. 18, lateral view of genital capsule; FIG. 19, dorsal view of connective; FIG. 20, dorsal view of 2nd sternal apodemes, all male drawings to same scale; FIG. 21, ventral view of female genitalia; FIG. 22, face view of female head, female drawings to same scale.

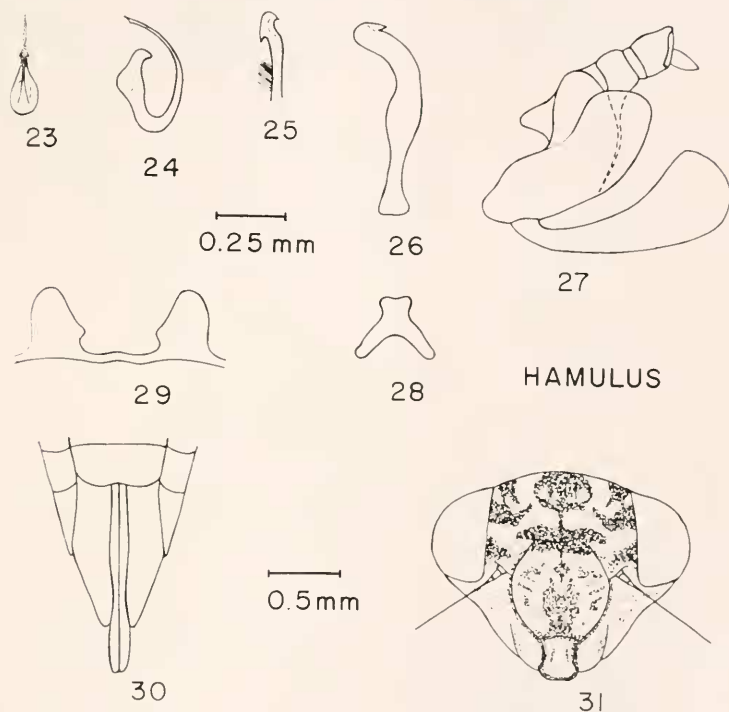
**Chileanoscopus ancorus** NEW SPECIES

(FIGS. 14-22)

Length of males 4.7-5.1 mm and of females 4.9-5.2 mm.

*Structure*.—Similar to *hichinsi*. Male second sternal apodeme (Fig. 20) long, stout, slanting with a truncate apex.

*Coloration*.—Similar to *hichinsi*. Face (Fig. 22) mostly patterned with reddish brown or black.



FIGS. 23-31. *Chileanoscopus hamulus* n. sp. FIG. 23, ventral view of aedeagus; FIG. 24, lateral view of aedeagus; FIG. 25, ventral tip of style; FIG. 26, lateroventral view of style; FIG. 27, lateral view of genital capsule; FIG. 28, dorsal view of connective; FIG. 29, dorsal view of male 2nd sternal apodemes, all male drawings to same scale; FIG. 30, ventral view of female genitalia; FIG. 31, face view of female head, female drawings to same scale.

*Male genitalia*.—Plates thick at base, then gradually laterally flattened toward a paddlelike apex. Pygofer narrow, with apex rounded and produced on each side. Tenth segment extending basally on each side in a fine process within pygofer to a point near base of styles. Styles with a patch of setae on lateral margin of narrowed middle, apical end scooped out medially with apex thin, straight, with rounded margin, subapical hooklike process on lateral side. Connective thick and V-shaped

Aedeagus simple with arched shaft narrowing to a pointed apex, a pair of very small thornlike bumps on lateral margin subapically; apodeme well developed, narrowing in ventral view to apex, expanded in lateral view near apex, and apex in line with base and apex of shaft.

*Female genitalia*.—Ovipositor extending beyond pygofer slightly more than its own width. Pygofer narrow, long, with rounded margins. Posterior margin of 7th sternum broadly rounded with a large median emargination.

*Type*.—Holotype male, Llay-Llay, Valp., Chile, February 4, 1951, Ross and Michelbacher. Allotype female, same data as holotype. Paratypes, 3 males, 6 females, and 1 nymph, same data as holotype. Holotype, allotype, and 8 paratypes in the California Academy of Science Collection; and 2 paratypes in the University of Kentucky Collection.

*Notes*.—Besides the type series two other series of specimens in the California Academy of Science Collection were examined. These series were: 7 males, 18 females Zapallar, Acon., Chile, December 15, 1950, Ross and Michelbacher; and 1 male, 4 females, 10 km east of Zapudo, Acon., Chile, November 28, 1950, Ross and Michelbacher.

### **Chileanoscopus hamulus NEW SPECIES**

(Figs. 23–31)

Length of males 4.1–4.5 mm and of females 4.0–4.5 mm.

*Structure*.—Short stubby species with head wider than pronotum, margin slightly rounded. Male second sternal apodeme (Fig. 29) short, truncate with a small median projection near base.

*Coloration*.—Similar to *hichinsi*. Face (Fig. 31) mostly patterned with reddish brown or black.

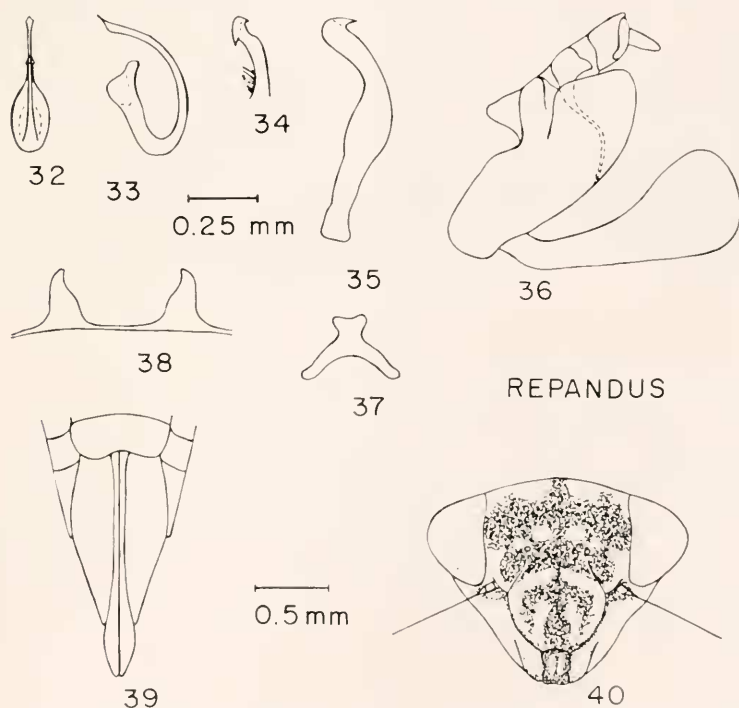
*Male genitalia*.—Plate thickened at base, then gradually laterally flattened toward a broad paddlelike apex. Pygofer narrow, with apex rounded and produced on each side. Tenth segment extending basally on each side in a fine process within pygofer to a point near base of styles. Style with patch of setae on lateral margin of middle, apical end scooped out medially with apex thin, bent medially and hooked, subapical hooklike process on lateral side. Connective thick and V-shaped. Aedeagus simple with narrow arched shaft extending to a slightly enlarged apex; apodeme well developed, narrowing to a slightly expanded apex in ventral view, expanded area near apex in lateral view, and apex not in line with base and apex of shaft.

*Female genitalia*.—Ovipositor extending beyond pygofer slightly more than its own width. Pygofer narrow, stubby, with rounded margins. Posterior margin of 7th sternum broadly rounded with a large median emargination.

*Types*.—Holotype male, Rio Blanco, Chile, February 28, 1954, L. E. Pena. Allotype female, same data as holotype. Paratypes, 19 males, 14 females, same data as holotype. Holotype, allotype, and 19 paratypes in the North Carolina State University Collection, 10 paratypes in the University of Kentucky Collection, and 4 paratypes in the California Academy of Science Collection.

*Notes.*—In this species the female genitalia appear to be shorter than in other species. This is also reflected in the total length of both the male and the female as this seems to be the smallest of the known species.

Besides the type series 53 other specimens were examined. These were: 3 males, 7 females, El Manzano, Chile, June 10, 1954, L. E. Pena, in the North Carolina State University Collection; 4 males, 9 females, 35 miles south of Oralle, Chile, December 1, 1950, Ross and Michelbacher; 2 males, 7 females, 50 km south of La Serena, Chile, December 1, 1950, Ross and Michaelbacher; 7 males, 14 females, 5 miles north of Illapel, Chile, November 30, 1950, Ross and Michelbacher, all in the California Academy of Science Collection.



FIGS. 32-40. *Chilcanoscopus repandus* n. sp. FIG. 32, ventral view of aedeagus; FIG. 33, lateral view of aedeagus; FIG. 34, ventral tip of style; FIG. 35, lateroventral view of style; FIG. 36, lateral view of genital capsule; FIG. 37, dorsal view of connective; FIG. 38, dorsal view of male 2nd sternal apodemes, all male drawings to same scale; FIG. 39, ventral view of female genitalia; FIG. 40, face view of female head, female drawings to same scale.

**Chileanoscopus repandus** NEW SPECIES

(FIGS. 32-40)

Length of males 4.5-4.8 mm, and of females 4.6-5 mm.

*Structure*.—Similar to *hichinsi*. Male second sternal apodeme (Fig. 38) short, narrowing to a rounded apex, with a small median projection near base.

*Coloration*.—Similar to *hichinsi*. Face (Fig. 40) mostly patterned with reddish brown or black.

*Male genitalia*.—Plate thickened at base, then gradually laterally flattened toward a broad paddlelike apex. Pygofer narrow, with apex truncate and produced on each side. Tenth segment extending basally on each side in a fine process within pygofer to a point near base of styles. Style with patch of setae on lateral margin of middle, apical end scooped out medially with apex thin, bent medially and hooked, subapical hooklike process on lateral side. Connective thick and V-shaped. Aedeagus simple with narrow arched shaft extending to a flattened diamond-shaped apex in ventral view; apodeme well developed, narrowing to a slightly expanded apex in ventral view, expanded area near apex in lateral view, and apex not in line with base and apex of shaft.

*Female genitalia*.—Ovipositor extending beyond pygofer slightly more than its own width. Pygofer narrow, long, with nearly straight margins. Posterior margin of 7th sternum broadly rounded with a large median emargination.

*Types*.—Holotype male, Las Cabras, Prov. de Huble, Chile, March 8-10, 1952, L. E. Pena. Allotype female, same data as holotype. Paratypes, 2 males, 1 female, same data as holotype. Holotype, allotype and 1 paratype in the North Carolina State University Collection; and 2 paratypes in the University of Kentucky Collection.

## REFERENCES CITED

- BAKER, C. F. 1915. Studies of Philippine Jassoidea, IV: The Idiocerini of the Philippines. *Philippine J. Sci.* 10 (6): 317-342.
- HELLER, F. 1969. Eine neue Idioceridae aus Chile: *Idiocerus hichinsi* n. sp. (Homoptera). *Entomological Z.* 79 (14): 155-157, fig. 1-10.
- MALDONADO-CAPRILES, J. 1964. Studies on Idiocerinae Leafhoppers: II. The Indian and Philippine Species of *Idiocerus* and the Genus *Idioscopus* (Homoptera: Cicadellidae). *Proc. Entomol. Soc. Washington* 66 (2): 89-100.
- . 1965. Studies on Idiocerinae Leafhoppers: III, on Singh-Pruthi's Indian Species of *Idiocerus* (Homoptera: Cicadellidae). *Proc. Entomol. Soc. Washington* 67 (4): 244-246.